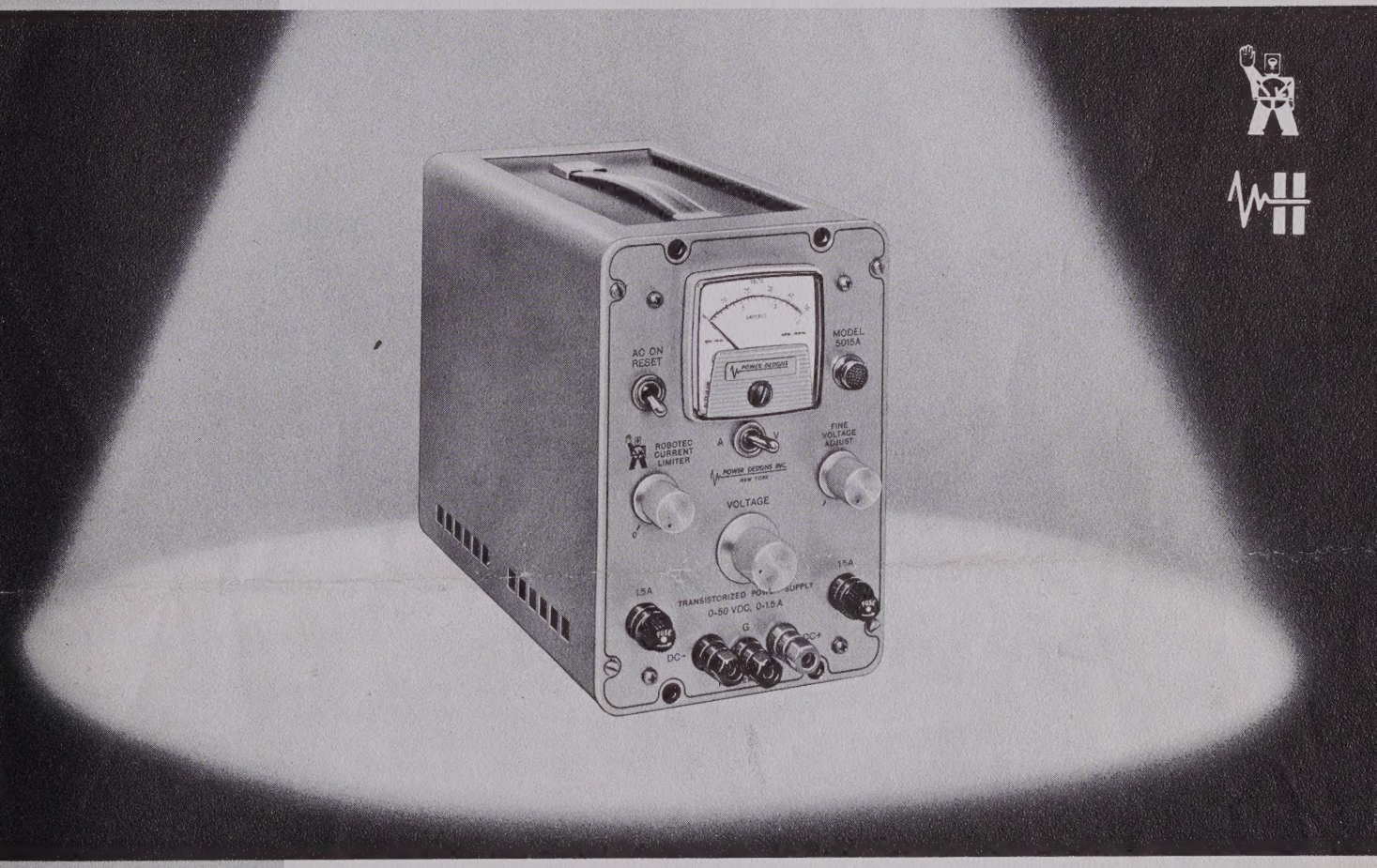
278-5

MODEL 5015A
0-50 VDC · 0-1.5A

POWER DESIGNS



ROBOTEC
HIGH SPEED PROTECTION AGAINST OVERLOAD and SHORT CIRCUITS

HEATRAN
TRANSISTOR DISSIPATION CONTROL

VOLTAC
TRANSIENT ABSORPTION CIRCUITRY

S·P·D·J
HIGH STABILITY AMPLIFIER

RECOGNIZED RELIABILITY

MODEL 5015 A

0 -50 VDC • 0-1.5A

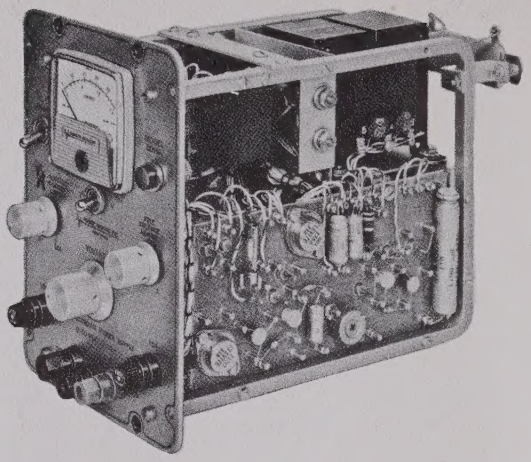
with . . .

ROBOTEC® — an inherent electronic circuit producing simultaneous voltage and current cutoff upon external overload or short circuit. The "ROBOTEC" circuit operates in thirty microseconds holding the power supply cut off until manually reset and reducing line input power to a negligible value. If an external short circuit exists the power supply cannot be turned on. The Model 5015A provides a continuous front panel adjustment of the overload current trip point from ten milliamperes to 1.5 amperes.

HEATRAN® electronic transistor dissipation control — a transistorized circuit continuously monitoring dissipation in the series power transistors of the regulator system. Dissipation above a preset maximum value is automatically transferred into external vitreous enamel resistors extending from the rear of the equipment in a perforated metal cage. "HEATRAN" thus permits fewer transistors for a given power supply capacity, more compact equipment with increased reliability and practical convection cooling.

VOLTAC — a transistorized circuit monitoring the voltage drop in the series power transistors of the regulator system. Voltages above a preset maximum are instantaneously absorbed, thus protecting these transistors and the load against line transients and providing improved performance and reliability.

S·P·D·J Silicon Planar Diffused Junction Transistor amplifier provides high stability over a wide range of operating temperatures.



DESIGN FEATURES:

- Silicon transistor amplifiers for maximum reliability and performance.
- Pre-aged germanium power transistors with controlled parameters to insure interchangeability and field reliability.
- Automatic Ico compensation circuit eliminates the possibility of turn-on and turn-off transients.
- Silicon diode voltage references operating in the zero temperature coefficient region.
- Silicon diode rectifiers utilized at less than 50% of rated voltage and current.
- Computer quality electrolytic capacitors.
- Coarse and fine voltage adjustment with resolution better than 5 millivolts.
- Line and load circuits separately fused. Accessible at front panel.
- Fifty hour pre-aging of power supplies prior to test guarantees service reliability.
- Modular package construction suitable for rack mounting on standard 8¾" x 19" rack panel.
- Rack panel adapters available for single and dual mounting.
- Compact and light. Weighs 18 lbs.
- Series operation. Up to six units may be connected in series to provide a voltage output of 300 volts at rated current.
- Volt-ammeter monitors output voltage or current.

ELECTRICAL SPECIFICATIONS:

INPUT: 105-125 volts, 55-440 cycles, *120 watts.

OUTPUT: 0-50 volts d-c, 0-1.5 amperes (continuously adjustable).

REGULATION: 10 millivolts or .05%, whichever is greater, for line or load variations.

RIPPLE: .001% or 500 microvolts rms. maximum.

SOURCE IMPEDANCE: .01 Ω to 20 kc., .5 Ω to 1 megacycle.

RESPONSE TIME: Less than 50 microseconds for 100% step change in rated load.

STABILITY: Less than 10 millivolts drift per 24 hours at constant ambient temperature. (With voltage control potentiometers replaced by fixed low temperature coefficient resistor.)

TEMPERATURE COEFFICIENT: D-C output voltage change less than .02% per degree Centigrade.

OPERATING TEMPERATURE: Continuous duty at full load to 50°C ambient.

OUTPUT TERMINALS: Three front panel binding posts. Either positive or negative output terminal may be grounded.

* At Nominal Line Voltage

MECHANICAL SPECIFICATIONS:

DIMENSIONS: 5¾" wide x 8⅝" high x 11¾" deep.

WEIGHT: 18 lbs.

FINISH: Brushed anodized natural aluminum panel with etched black lettering. Cabinet finished in grey wrinkle enamel.

RACK MOUNTING: Panel adapters available for single or multiple mounting. Request panel adapter catalog sheet, RPA-62.

PRICE $2345.0 FOB FACTORY

10M 5-63 PRINTED IN USA

Power Designs inc.
1700 SHAMES DRIVE, WESTBURY, NEW YORK
516 EDgewood 3-6200 TWX WBRY 350

"ROBOTEC CURRENT LIMITER" ADJUSTMENT:

1. SET VOLTAGE TO DESIRED VALUE AND CONNECT LOAD TO OUTPUT TERMINALS WITH "ROBOTEC CURRENT LIMITER" CONTROL TO MAXIMUM CLOCKWISE POSITION.

2. TURN "ROBOTEC CURRENT LIMITER" SLOWLY COUNTERCLOCKWISE UNTIL OUTPUT VOLTAGE COLLAPSES TO ZERO AS SHOWN ON VOLTMETER.

3. SET "ROBOTEC CURRENT LIMITER" SLIGHTLY CLOCKWISE PAST THE TRIP POINT OF PARA. 2.

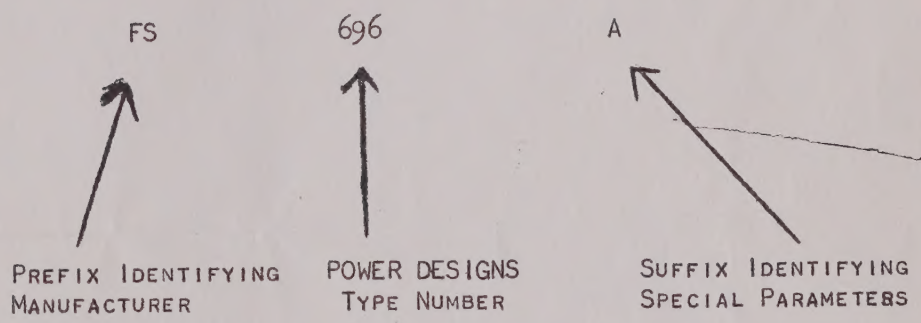
4. THROW "AC ON RESET" TOGGLE SWITCH TO OFF POSITION, THEN ON AGAIN. THIS SHOULD RESTORE OPERATION OF POWER SUPPLY AND PROVIDE AUTOMATIC OVERCURRENT PROTECTION.

POWER DESIGNS INC.

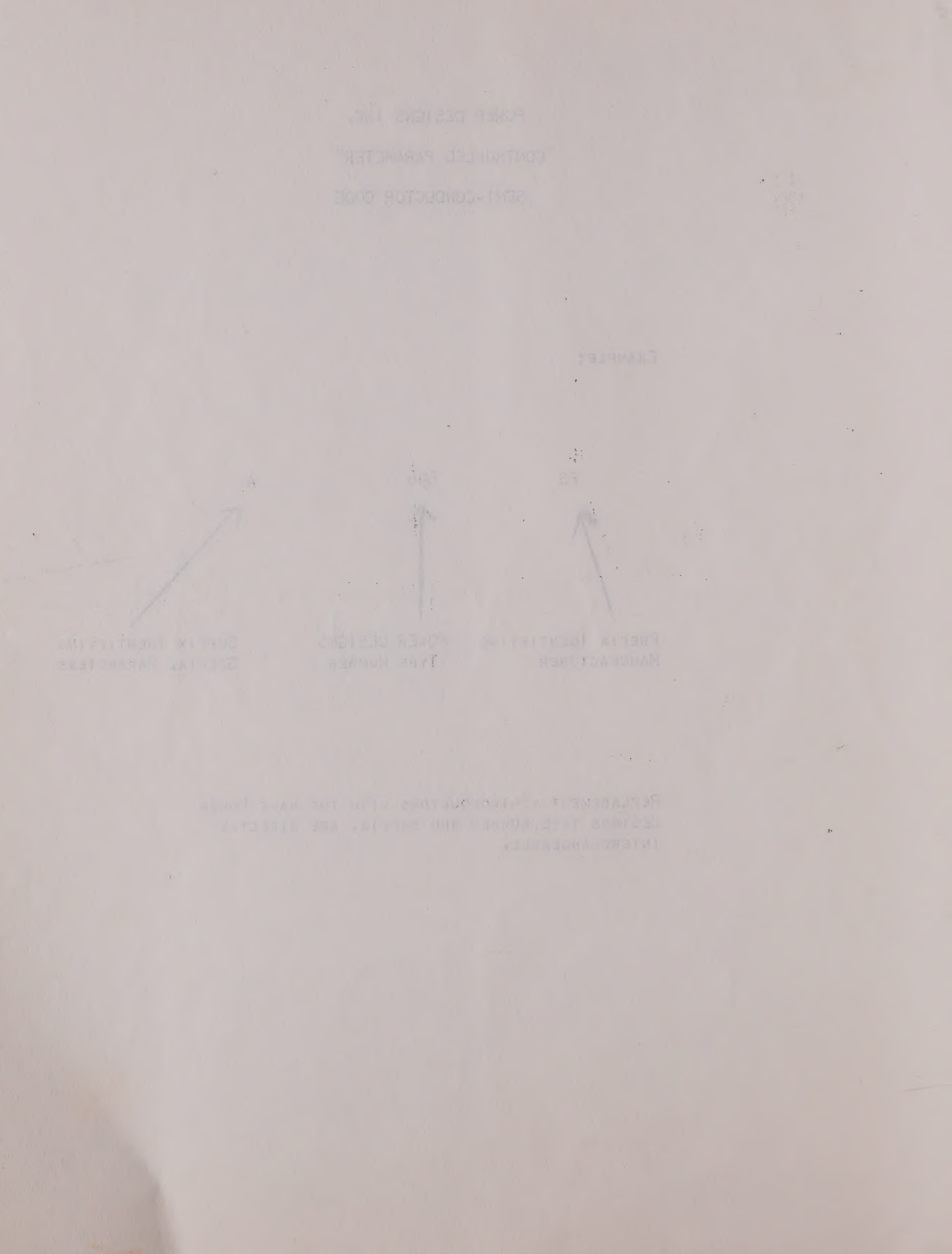
"CONTROLLED PARAMETER"

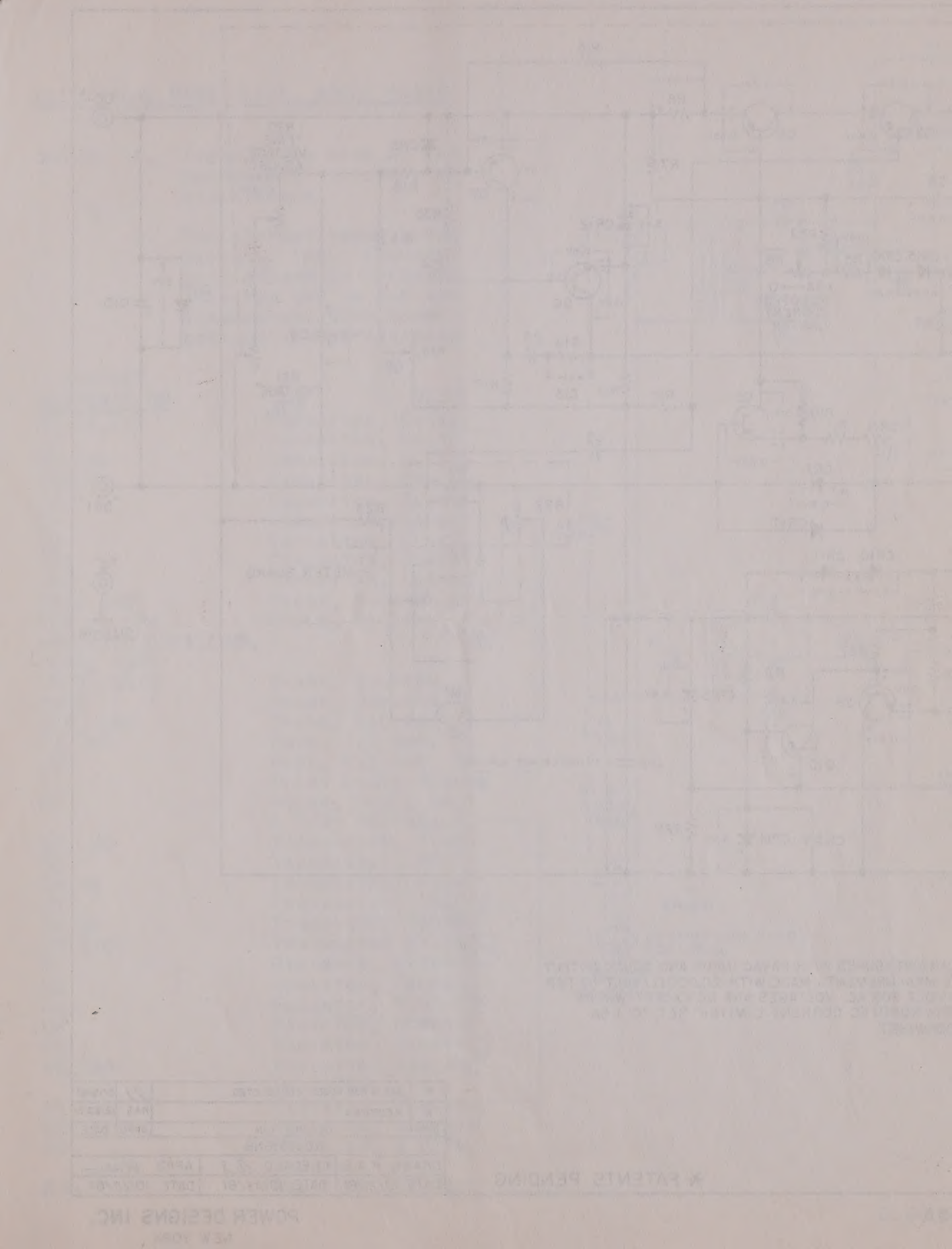
SEMI-CONDUCTOR CODE

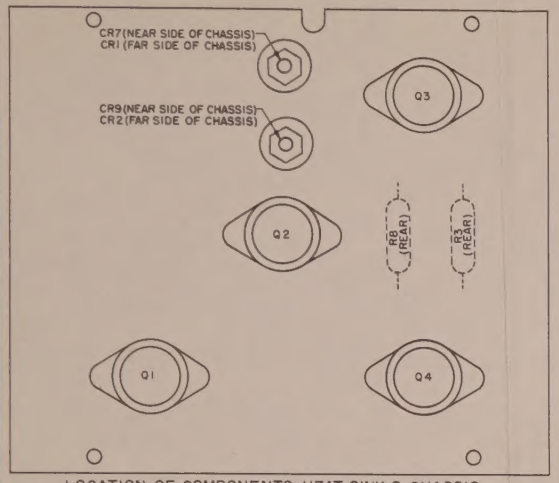
EXAMPLE:



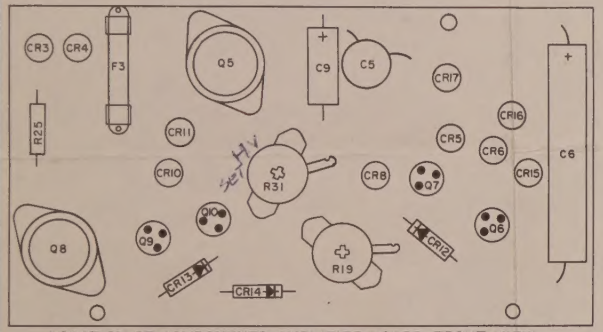
REPLACEMENT SEMICONDUCTORS WITH THE SAME POWER DESIGNS TYPE NUMBER AND SUFFIX, ARE DIRECTLY INTERCHANGEABLE.



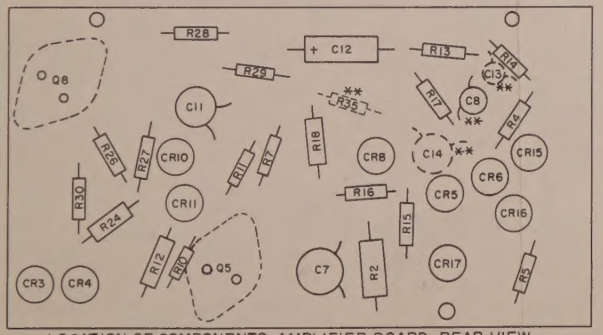




LOCATION OF COMPONENTS-HEAT SINK & CHASSIS

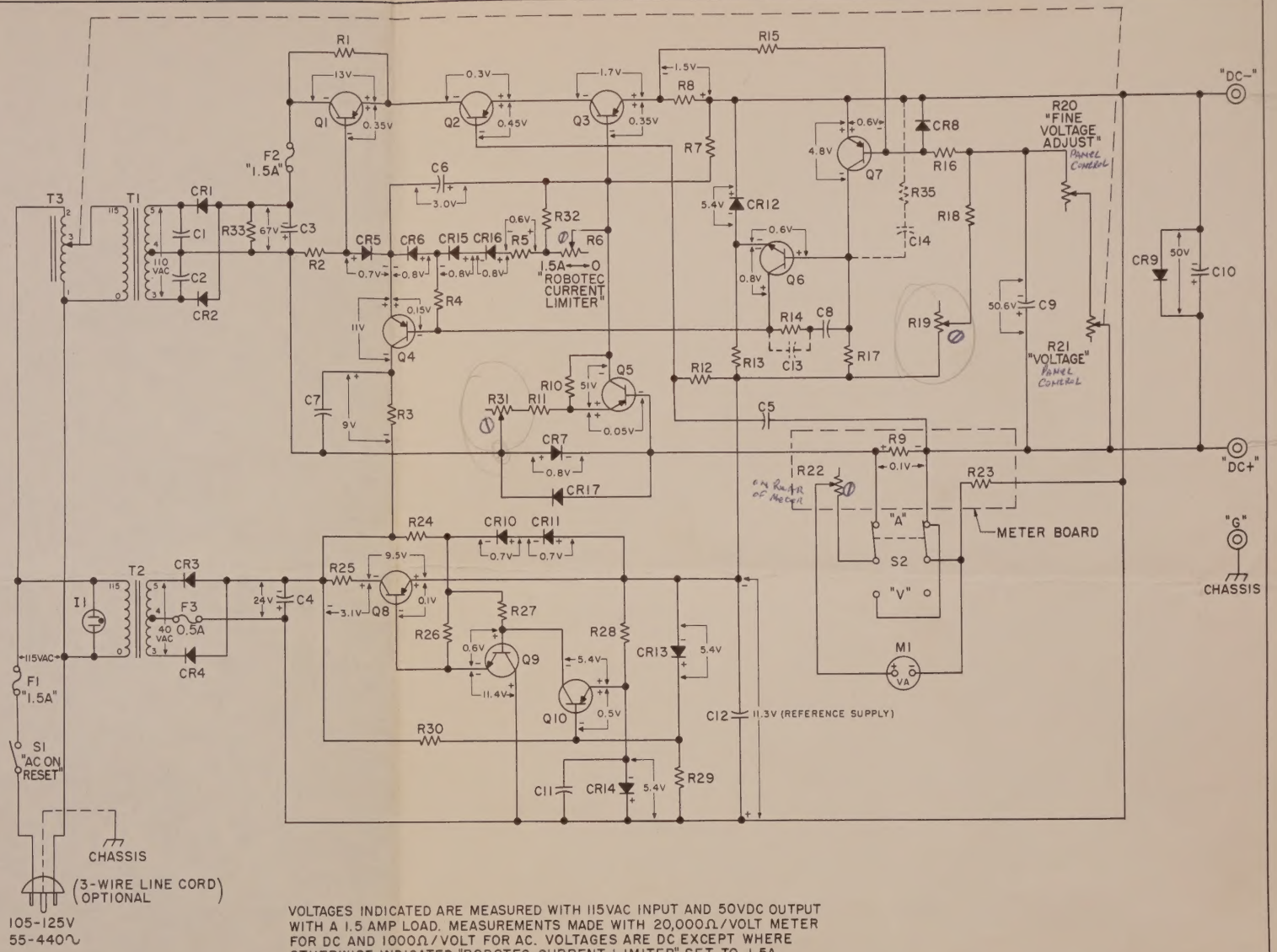


LOCATION OF COMPONENTS-AMPLIFIER BOARD-FRONT VIEW



LOCATION OF COMPONENTS-AMPLIFIER BOARD-REAR VIEW

** SEE INSTRUCTION MANUAL ADDENDA FOR PARTS C8, C13, C14 & R35



VOLTAGES INDICATED ARE MEASURED WITH 115VAC INPUT AND 50VDC OUTPUT WITH A 1.5 AMP LOAD. MEASUREMENTS MADE WITH 20,000Ω/VOLT METER FOR DC AND 1000Ω/VOLT FOR AC. VOLTAGES ARE DC EXCEPT WHERE OTHERWISE INDICATED. "ROBOTEC CURRENT LIMITER" SET TO 1.5A POSITION (MAX. CLOCKWISE).

SYM.	DESCRIPTION	APPD.	DATE
	REVISIONS		
B	C14 & R35 ADDED. C13 DELETED.	RJ	5/15/62
A	REDRAWN.	RAS	12/29/61

DRAWN	CHECKED	APPD.
R.A.S.	R.S.	H. Rose
DATE 10/21/61	DATE 10/23/61	DATE 10/23/61

DWG. NO. PS-5015A-10 REV. B

* PATENTS PENDING

* MODEL 5015A
TRANSISTORIZED POWER SUPPLY

0-50 VDC, 0-1.5A

POWER DESIGNS INC.
NEW YORK

2/24/62

ELECTRICAL PARTS LIST, MODEL 5015A

NOTES: 1. ITEMS WHICH BEAR NO FACTORY PART NUMBER ARE STANDARD COMPONENTS AVAILABLE FROM YOUR REGULAR ELECTRONIC PARTS DISTRIBUTOR.

2. REPLACEMENT TRANSISTORS SHOULD BE OBTAINED FROM POWER DESIGNS, INC. COMMERCIALLY EQUIVALENT TRANSISTORS HAVE WIDE PARAMETER TOLERANCES WHICH MAY RENDER THEM UNSUITABLE FOR USE IN D-C AMPLIFIER CIRCUITRY. REPLACEMENT OF TRANSISTORS WITH COMMERCIAL EQUIVALENTS MAY RESULT IN DEGRADATION OF PERFORMANCE.

CIRCUIT DESIGNATION	DESCRIPTION	FACTORY PART NO.
C1,C2,C11	CAPACITOR, CERAMIC DISC, .01 MFD, 1KV	CC-13-10
C3	CAPACITOR, ELECTROLYTIC, 2500 MFD, 85 VDC	CE-51-.85
C4,C10	CAPACITOR, ELECTROLYTIC, 350 MFD, 85 VDC	CE-47-.85
C5,C7	CAPACITOR, CERAMIC DISC, 0.1 MFD, 100 VDC	CC-18-1
C6	CAPACITOR, ELECTROLYTIC, 1100 MFD, 5 VDC	CE-52-.05
C8	CAPACITOR, CERAMIC DISC, 0.0022 MFD, 1 KV	CC-19-10
C9	CAPACITOR, ELECTROLYTIC, 20 MFD, 50 VDC	CE-18-.5
C12	CAPACITOR, ELECTROLYTIC, 8 MFD, 25 VDC	CE-21-.25
C13	CAPACITOR, CERAMIC DISC, 0.001 MFD, 1 KV	CC-17-10
CR1, CR2	DIODE, SILICON, RECTIFIER, 2.5 AMP, 200 PIV	SP241
CR3 TO CR6	DIODE, SILICON, RECTIFIER, 0.5A, 100 PIV	F1044P
CR8,CR10,CR11,CR15, CR16, CR17		
CR12, CR13	DIODE, SILICON, VOLTAGE REFERENCE, 5.2-5.4v	PS359B
CR14	DIODE, SILICON, VOLTAGE REFERENCE, 5.4-5.6v	PS359A
CR7, CR9	DIODE, SILICON, RECTIFIER, 1.0 A, 100 PIV	SP259
F1, F2	FUSE, 1.5 AMP, TYPE MDX, 'SLO-BLO'	-----
F3	FUSE, 0.5 AMP, TYPE MDL, 'SLO-BLO'	-----
I1	PILOT LIGHT ASSEMBLY	PLA-1
M1	METER, DUAL, VOLT-AMMETER, 0-50V/0-1.5A, 2 1/2" RECTANGLE	MVA-85
Q1, Q2	TRANSISTOR, 1199 (CLEVITE)	CTP1199
Q3	TRANSISTOR, 1518 (CLEVITE)	CTP1518
Q4,Q8	TRANSISTOR, 1150 (CLEVITE)	CTP1150
Q5	TRANSISTOR, 1356 (CLEVITE)	CDT1356
Q6,Q9	TRANSISTOR FS696 (FAIRCHILD)	FS696
Q7,Q10	TRANSISTOR 2N1027 (SPERRY)	2N1027
R1	RESISTOR, WIREWOUND, 15Ω, 45W, ±5%	RWF150P3
R2	RESISTOR, COMPOSITION, 3.3K, 2W, ±10%	-----
R3	RESISTOR, WIREWOUND, 100Ω, 5W, ±5%	RW-101-3D
R4	RESISTOR, COMPOSITION, 180Ω, 1/2W, ±10%	-----
R5	RESISTOR, COMPOSITION, 5.6Ω, 1/2W, ±5%	-----
R6,R20	RESISTOR, VARIABLE, WIREWOUND, 200Ω, 2W, ±10%	RWV-201C4-.87
R7	RESISTOR, COMPOSITION, 56Ω, 1/2W, ±10%	-----
R8	RESISTOR, WIREWOUND, 1Ω, 5W, ±5%	RW-010-3D
R9	RESISTOR, 0.067Ω, PART OF METER BOARD ASSEMBLY	MTB-5015
R10	RESISTOR, COMPOSITION, 10K, 1/2W, ±10%	-----

ELECTRICAL PARTS LIST, MODEL 5015A (CONTINUED)

CIRCUIT DESIGNATION	DESCRIPTION	FACTORY PART NO.
R11	RESISTOR, COMPOSITION, 22Ω, 1/2W, ±10%	------
R12	RESISTOR, COMPOSITION, 120Ω, 1W, ±10%	------
R13,R16,R26	RESISTOR, COMPOSITION, 330Ω, 1/2W, ±10%	------
R14	RESISTOR, COMPOSITION, 2.2K, 1/2W, ±10%	------
R15	RESISTOR, COMPOSITION, 560K, 1/2W, ±10%	------
R17	RESISTOR, COMPOSITION, 1.5K, 1/2W, ±10%	------
R18	RESISTOR, METAL FILM, PRECISION, 1300Ω, 1/4W, ±1%	RD-132-1Q
R19	RESISTOR, VARIABLE, WIREWOUND, TRIMMER, 200Ω, 1 1/4W, ±10%	RWT-201-C4
R21	RESISTOR, VARIABLE, 10K, 4W, WIREWOUND, PART OF TTV-1.5B-4 ASSEMBLY	
R22,R31	RESISTOR, VARIABLE, WIREWOUND, TRIMMER 50Ω, 1 1/4W, ±10%	RWT-500-C4
R23	RESISTOR, WIREWOUND, PRECISION, 49.9K, 1/4W, ±0.5%	RW-49.92-6Q
R24	RESISTOR, COMPOSITION, 470Ω, 1W, ±10%	------
R25	RESISTOR, COMPOSITION, 39Ω, 1W, ±10%	------
R27	RESISTOR, COMPOSITION, 5.6K, 1/2W, ±10%	------
R28,R29,R32	RESISTOR, COMPOSITION, 560Ω, 1/2W, ±10%	------
R30	RESISTOR, COMPOSITION, 47K, 1/2W, ±10%	------
R33	RESISTOR, COMPOSITION, 5.6K, 2W, ±10%	------
S1	SWITCH, TOGGLE, S.P.S.T., 15A, 125V	ST-5
S2	SWITCH, TOGGLE, D.P.D.T., 15A, 125V	ST-2
T1	TRANSFORMER, POWER	TTM-38
T2	TRANSFORMER, AUXILIARY	TTH-23
T3,R21	AUTOTRANSFORMER, VARIABLE, ASSEMBLY	TTV-1.5B-4

WARRANTY

POWER DESIGNS INC. WARRANTS TO THE ORIGINAL PURCHASER, EACH INSTRUMENT SOLD BY US, OR OUR AUTHORIZED AGENTS, AND ALL PARTS THEREOF, TO BE FREE FROM DEFECTS IN MATERIAL OR WORKMANSHIP UNDER NORMAL USE AND SERVICE WITHIN THE SPECIFIED RATINGS AND OPERATING CONDITIONS.

ITS OBLIGATION UNDER THIS WARRANTY IS HEREBY LIMITED TO THE REPAIR OR REPLACEMENT OF ANY INSTRUMENT, OR PART THEREOF, WHICH IS RETURNED TO US WITHIN ONE YEAR AFTER DELIVERY, AND WHICH SHALL PROVE AFTER OUR EXAMINATION, TO BE THUS DEFECTIVE.

THIS WARRANTY DOES NOT INCLUDE THE COST OF TRANSPORTATION CHARGES TO AND FROM THE FACTORY AND/OR THE COST OF PACKAGING OR CRATING OF INSTRUMENTS FOR RETURN TO THE FACTORY UNLESS SUCH INSTRUMENT IS RETURNED WITHIN THIRTY (30) DAYS FROM DATE OF ORIGINAL SHIPMENT AS SHOWN ON THE PACKING LIST OR SHIPPING DOCUMENTS, AND PRIOR WRITTEN AUTHORIZATION FOR SUCH COSTS IS OBTAINED FROM THE FACTORY.

THE REPAIR OR REPLACEMENT OF AN INSTRUMENT OR ANY PART THEREOF DOES NOT VOID OR EXTEND THE ORIGINAL WARRANTY.

POWER DESIGNS INC. RESERVES THE RIGHT TO DISCONTINUE ANY INSTRUMENT WITHOUT NOTICE, OR TO MAKE MODIFICATIONS IN DESIGN AT ANY TIME WITHOUT INCURRING ANY OBLIGATION TO MAKE THESE MODIFICATIONS IN INSTRUMENTS PREVIOUSLY SOLD.

POWER DESIGNS INC.
1700 SHAMES DRIVE
WESTBURY, LONG ISLAND,
NEW YORK

www.manualsplus.com
1012064